

REMARKS/ARGUMENTS

No new matter is added by this amendment. Reconsideration and allowance of the claims pending in the application are respectfully requested.

The Applicants' attorney thanks the Examiner for the courteous telephone interview of September 11, 2007, wherein amended claim 1 was discussed.

I. Status of Claims:

Claims 1-29 are pending in the application.

Claims 23 and 24 were objected to, but indicated as allowable.

Claims 1-22 and 25-29 have been rejected as follows:

Claims 1, 2, 5, 10 and 28, 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, US Pub No. 2003/0078037 in view of McCorkle, US Pub No.: 2003/0174048.

Claims 3, 4, 6-8 and 11-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland in view of McCorkle and further in view of Specification of the Bluetooth System, Feb. 22, 2001, pages 207, Subheading 3.11 and 232, Subheading 4.

Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland and in view of McCorkle and further in view of Moeglein US Pub No.: 2005/0037775.

Claims 14-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland and McCorkle and further in view of Kim, et al.; US Pub. No.2003/0,108,010.

Claims 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland and McCorkle and further in view of Ito US 2002-0,151,276 A1.

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, McCorkle and Ito; and further in view of Moeglein.

Claims 22, 25 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, McCorkle and Ito; and further in view of the Specification of the Bluetooth System, Feb. 22, 2001.

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, McCorkle and Ito; and the Specification and further in view of Kim.

II. Response to Claim Objections:

The Examiner indicated that Claims 23 and 24 would be allowable if rewritten to include its base claims. The above amendment to claim 23 carries out the Examiner's suggestion. Thus, claims 23 and its dependent claim 24 are believed to be allowable.

III. Response to Claim Rejections - 35 U.S.C. § 103:

A. Auckland in view of McCorkle

Claims 1, 2, 5, 10 and 28, 29 were rejected under 35 U.S.C. § 103(a) as being patentable over Auckland, US Pub No. 2003/0078037 in view of McCorkle, US Pub No.: 2003/0174048.

Before addressing this ground for rejection, the Applicants would like to draw the Examiner's attention to some of the novel and unobvious features of their claimed invention.

The Applicants' claimed invention determines through a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol. As the Applicants describe in paragraph [0058] of their specification, these capabilities may be communicated to the initiating device over a Bluetooth link, for example, in the form of the

remote device's link type identifiers and their associated transmission formats (e.g., UWB radio standard and version).

Further, the Applicants' claimed invention exchanges information with the remote device across the first communications link to establish the second short-range communications link, if the remote device is determined to be capable of supporting communications over the second short-range communications link. As the Applicants describe in paragraph [0059] of their specification, if the initiating device determines, for example, that the remote device has UWB communications capabilities, then the initiating device initiates a second link establishment process to establish a UWB link.

Further, the Applicants' claimed invention establishes the second short-range communications link with the remote device based on the information exchanged across the first short-range communications link. As the Applicants describe in paragraphs [0060] and [0061] of their specification, if the link establishment process is successful, then the initiating device and the remote device may engage in communications across the second link, for example a UWB link.

Further, the Applicants' claimed invention controls transmissions of the first communication link and second communication link to operate in a scheduled manner. Operating transmissions in a scheduled manner is described by the Applicants in paragraphs [0098] and [0116]-[0117] of their specification. Paragraphs [0116]-[0117] read as follows:

[0116] As described above, UWB/HR radio transmissions may be scheduled as Bluetooth transmissions in a time division manner that employs the timing of the Bluetooth slot structure. This may be performed by utilizing a current medium rate packet structure and transmitting higher data rate signals in the payload part of the packet. FIG. 13 is a diagram of a medium rate packet structure. This structure includes an access code 1302, a packet header 1304, a guard time and synchronization sequence 1306, a payload 1308, and a trailer 1310.

[0117] The main difference in the packet structure of FIG. 13 from the basic rate packet structure is the addition of guard time and synchronization sequence 1306 following packet header 1304. This guard time allows for settling and switching in the hardware during the transition from one modulation scheme to the other for payload 1308. With a DPSK modulated signal, the payload is followed with two trailer symbols. In every packet, access code 1302 and header 1304 is sent by basic rate Bluetooth radio. However, during payload 1308, the modulation or completely different radio is switched on. While, this radio is using Bluetooth slot timing, characteristics such as the used frequency band, modulation type, and UWB transmission are freely chosen for payload 1308.

Turning now to the rejection of Claims 1, 2, 5, 10 and 28, 29, the combination of Auckland and McCorkle fails to disclose or suggest the Applicants' claimed invention.

1. Auckland:

The Examiner contends that Auckland discloses all the features of the claimed subject matter, except Auckland does not show where the Base Station is relaying communication to another device.

Auckland at Paragraphs 0188-0192 discloses a base station in a cellular network receives requests for resources from roaming mobile devices. The request for resources is initiated by a device via an initiating channel linked to the base station. The request may include identifying information and resource specific information. The resources are chosen by the base station for an optimum forward and reverse channel. The identifying information is communicated to the device by the base station via the chosen transmit and receive channel.

In contrast, in the Applicants' claimed invention, an initiating device in an ad hoc network determines over a first short-range communications link, the capabilities of a remote device for communications over a second short-range communications link operating according

to a second short-range communications protocol. If the capabilities exist, the initiating device proceeds to establish the second link while the first link remains active.

Applicants contend that Auckland does not describe an initiating device determining over a first short-range communications link operating according to a first short-range communications protocol, the capabilities of a remote device for communications over a second short-range communications link operating according to a second short-range communications protocol, and if the capabilities exist, the initiating device proceeds to establish the second link while the first link remains active.. Auckland discloses in Paragraph 0189 the base station in choosing forward/reverse channels for the requesting device considers factors including requirement of the subscriber unit, traffic at the time required for communication, alternatives at the location, but none of the factors considered by Auckland relate to determining whether a remote device is capable of supporting a second short-range communications link operating according to a second short-range communications protocol, as claimed by the Applicants.

2. McCorkle

McCorkle discloses a local device wirelessly communicating with remote devices, typically identification tags by RF and UWB. The local device uses the RF to detect and connect to remote devices having UWB transceivers, after the local device determines the identification and distance of the remote device. The UWB transceiver, after connection, performs the necessary communication function with the local device. The UWB transceiver is turned off when communication with the local device ends. During the UWB transmissions, the RF transceiver is de-activated and periodically activated as described in Paragraph 0111 of McCorkle.

McCorkle fails to disclose or suggest determining whether a wireless device is capable of UWB transmissions. McCorkle discloses all remote devices include UWB transceivers. Further, the McCorkle network is established with the local devices linked to the remote devices via UWB links. There is no exchanging of information in McCorkle between the local device and the remote device to establish a second short-range communications link operating according to a second short-range communications protocol, wherein if the capabilities exist, the initiating device proceeds to establish the second link while the first link remains active, as claimed by the Applicants.

McCorkle does not disclose exchanging information with another device to establish a UWB link, because the link is already established and only needs to be activated.

The combination of Auckland and McCorkle fails to disclose or suggest the Applicants' claimed invention of [1] determining through a first short-range communications link whether the remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, [2] exchanging information with the remote device across the first communications link to establish the second short-range communications link if the remote device is determined to be capable of supporting communications over the second short-range communications link, [3] establishing the second short-range communications link with the remote device based on the information exchanged across the first short-range communications link, and [4] controlling transmissions of the first and second communication links to operate in a scheduled manner.

Accordingly, Claims 1, 2, 5, 10 and 28, 29 are patentable over Auckland, US Pub No. 2003/0078037 in view of McCorkle, US Pub No.: 2003/0174048.

B. Auckland, McCorkle and the Specification of the Bluetooth System

Claims 3, 4, 6-8 and 11-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland in view of McCorkle and further in view of Specification of the Bluetooth System, Feb. 22, 2001, pages 207, Subheading 3.11 and 232, Subheading 4.

The Specification of the Bluetooth System, Feb. 22, 2001, page 207, Subheading 3.11, reads as follows:

3.11 SUPPORTED FEATURES

The Bluetooth radio and link controller may support only a subset of the packet types and features described in Baseband Specification and Radio Specification. The PDU LMP_features_req and LMP_features_res are used to exchange this information. The supported features can be requested at anytime following a successful baseband paging procedure. A device may not send any packets other than ID, FHS, NULL, POLL, DM1 or DH1 before it is aware of the supported features of the other device. After the features request has been carried out, the intersection of the supported packet types for both sides may also be transmitted. Whenever a request is issued, it must be compatible with the supported features of the other device. For instance, when establishing an SCO link the initiator may not propose to use HV3 packets if that packet type is not supported by the other device. Exceptions to this rule are LMP_switch_req and LMP_slot_offset, which can be sent before the requesting side is aware of the other side's features (switch is an optional feature)

The Specification of the Bluetooth System, Feb. 22, 2001, page 232, Subheading 4, reads as follows:

4 CONNECTION ESTABLISHMENT

After the paging procedure, the master must poll the slave with a max poll interval as defined in Table 5.5 on page 245. LMP procedures with for clock offset request, LMP version, supported features, name request and detach can then be carried out. When the paging device wishes to create a connection involving layers above LM, it sends LMP_host_connection_req. When the other side receives this message, the host is informed about the incoming connection. The remote device can accept or reject the connection request by sending LMP_accepted or LMP_not_accepted. Alternatively, if the slave needs a master-slave switch, see section 3.12 on page 208, it sends LMP_slot_offset and LMP_switch_req after it has received LMP_host_connection_req. When the master-slave switch has been successfully completed, the old slave will reply with

LMP_accepted or LMP_not_accepted to LMP_host_connection_req (with the transaction ID set to 0).

The Specification of the Bluetooth System, pages 207, Subheading 3.11 and 232, Subheading 4, discloses LMP packets used to exchange information on supported features between two Bluetooth devices prior to establishing a Bluetooth connection. These are solely Bluetooth communications protocol features described in Bluetooth Baseband Specification and Bluetooth Radio Specification. However, there is no disclosure of suggestion of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Accordingly, Claims 3, 4, 6-8 and 11-13 are patentable over Auckland in view of McCorkle and further in view of the Specification of the Bluetooth System, Feb. 22, 2001, pages 207, Subheading 3.11 and 232, Subheading 4.

C. Auckland, McCorkle and Moeglein

Clam 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland and in view of McCorkle and further in view of Moeglein US Pub No.: 2005/0037775, citing paragraph 76. Moeglein reads as follows:

[0076] In one embodiment of the present invention, communication transceiver section 305 is capable of being used with a number of different air interfaces (e.g., IEEE 802.11, bluetooth, UWB, TD-SCDMA, IDEN, HDR, TDMA, GSM, CDMA, W-CDMA, UMTS,

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or other similar networks) for communication (e.g., through communication links 350 and 360). In one embodiment of the present invention, communication transceiver section 305 is capable of being used with one air interface for communication and capable of being used to receive signals with other air interfaces. In one embodiment of the present invention, communication transceiver section 305 is capable of being used with one air interface for communication while also being capable of being used with signals in another air interface to extract timing indicators (e.g., timing frames or system time) or to calibrate the local oscillator (not shown in FIG. 3) of the mobile station. More details about the mobile station for extracting timing indicators or calibrating the local oscillator can be found in U.S. Pat. Nos. 5,874,914 and 5,945,944.

Moeglein discloses a wireless access point locating method using GPS, cell phone signals, and short-range signals such as Bluetooth or UWB. Positions are calculated based on signal strengths, propagation delays, and/or timing values of the several signals. However, there is no disclosure or suggestion in Moeglein of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Claim 9 is patentable over Auckland in view of McCorkle and Moeglein.

D. Auckland, McCorkle and Kim

Claims 14-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland and McCorkle and further in view of Kim, et al.; US Pub. No. 2003/0,108,010, citing paragraph 11, table 1. Kim reads as follows:

[0011] For a more efficient data transmission, Bluetooth defines the types of the packets according to the numbers of slots they use: the packet type that uses three (3) slots is DH3 packet type, and the packet that uses five (5) slots is DH5 packet type. The DH3 and DH5 packet types are more efficient since they transmit a lot more information for one slot than the DH1 packet type does. There are DM3 and DM5 corresponding to the DM1.

The DM1 packet only transmits data information. As described above, there are six (6) types of packets for data transmission, and each packet type is distinguished from each other by the length and whether it corrects the error or not. The six packet types are shown in the Table 1 below:

TABLE 1

Type /	Maximum Payload (byte) /	FEC /	Maximum Rates (Kbps)
DM1	17	0	108.8
DH1	27	X	172.8
DM3	121	0	387.2
DH3	183	X	585.6
DM5	224	0	477.8
DH5	339	X	723.2

Kim discloses a packet size adjusting technique used in Bluetooth to accommodate the larger number of bits necessary to encode for various levels of forward error correction coding of the data in the packet. However, there is no disclosure or suggestion in Kim of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Claims 14-16 are patentable over Auckland in view of McCorkle and Kim.

E. Auckland, McCorkle and Ito

Claims 17-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland and McCorkle and further in view of Ito US 2002-0,151,276 A1, citing paragraph 28.

[0028] Each piece of host equipment included in the short-range wireless communication network, which incorporates the Bluetooth system, employs a slave/master system. Thus, the host equipment is divided into master equipment that determines a pattern of frequency hopping and slave equipment that communicates with and is controlled by the

master equipment, depending on contents to be processed. Each piece of master equipment can communicate data with seven pieces of slave equipment at a time. A subnet that includes a total of eight pieces of equipment, that is, one unit of master equipment and seven units of slave equipment, is called a "piconet". The host equipment 4, which is included in the wireless LAN system, designated as slave equipment, can serve as slave equipment for two or more piconets at a time.

Ito discloses the Bluetooth piconet arrangement of a master device controlling seven slave devices, and the ability of any device in the piconet to assume a dual role of slave device on one Bluetooth piconet and slave device in a second Bluetooth piconet. However, there is no disclosure or suggestion in Ito of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Claims 17-20 are patentable over Auckland in view of McCorkle and Ito.

F. Auckland, McCorkle, Ito and Moeglein

Claim 21 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, McCorkle and Ito; and further in view of Moeglein.

Moeglein discloses a wireless access point locating method using GPS, cell phone signals, and short-range signals such as Bluetooth or UWB. Positions are calculated based on signal strengths, propagation delays, and/or timing values of the several signals. Ito discloses the Bluetooth piconet arrangement of a master device controlling seven slave devices, and the ability of any device in the piconet to assume a dual role of slave device on one Bluetooth piconet and slave device in a second Bluetooth piconet. However, there is no disclosure or suggestion in

either Auckland, McCorkle, Ito or Moeglein of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Clam 21 is patentable over the combination of Auckland, McCorkle, Ito and Moeglein.

G. Auckland, McCorkle Ito and the Specification

Claims 22, 25 and 26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, McCorkle and Ito; and further in view of the Specification of the Bluetooth System, Feb. 22, 2001, pages 207, Subheading 3.11 and 232, Subheading 4.

The Specification of the Bluetooth System, pages 207, Subheading 3.11 and 232, Subheading 4, discloses LMP packets used to exchange information on supported features between two Bluetooth devices prior to establishing a Bluetooth connection. These are solely Bluetooth communications protocol features described in Bluetooth Baseband Specification and Bluetooth Radio Specification. However, there is no disclosure or suggestion in Auckland, McCorkle Ito and the Specification, alone or in combination, of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Claims 22, 25 and 26 are patentable over the combination of Auckland, McCorkle Ito and the Specification.

H. Auckland, McCorkle, Ito, the Specification and Kim

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Auckland, McCorkle and Ito; and the Specification and further in view of Kim.

Ito discloses the Bluetooth piconet arrangement of a master device controlling seven slave devices, and the ability of any device in the piconet to assume a dual role of slave device on one Bluetooth piconet and slave device in a second Bluetooth piconet. The Specification of the Bluetooth System, pages 207, Subheading 3.11 and 232, Subheading 4, discloses LMP packets used to exchange information on supported features between two Bluetooth devices prior to establishing a Bluetooth connection. These are solely Bluetooth communications protocol features described in Bluetooth Baseband Specification and Bluetooth Radio Specification. Kim discloses a packet size adjusting technique used in Bluetooth to accommodate the larger number of bits necessary to encode for various levels of forward error correction coding of the data in the packet. However, there is no disclosure or suggestion in Auckland, McCorkle, Ito, the Specification, or Kim, alone or in combination, of determining over a first short-range communications link operating according to a first short-range communications protocol, whether a remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, and establishing the second link in response to the determination, as claimed by the Applicants.

Claim 27 is patentable over the combination of Auckland, McCorkle, Ito, the Specification and Kim.

Neither Auckland, McCorkle, Moeglein, Ito, the Bluetooth Specification, Kim, nor their combination, discloses or suggests the Applicants' claimed invention of [1] determining through a first short-range communications link whether the remote device is capable of supporting communications over a second short-range communications link operating according to a second short-range communications protocol, [2] exchanging information with the remote device across the first communications link to establish the second short-range communications link if the remote device is determined to be capable of supporting communications over the second short-range communications link, [3] establishing the second short-range communications link with the remote device based on the information exchanged across the first short-range communications link, and [4] controlling transmissions of the first and second communication links to operate in a scheduled manner.

Accordingly, Claims 1-29 are patentable over Auckland, McCorkle, Moeglein, Ito, the Bluetooth Specification, Kim, taken wither singly or in combination.

CONCLUSION

Based on the foregoing remarks, Applicants respectfully request reconsideration of the claims; withdrawal of the rejection; allowance of the claims, and passage to issue of the application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4500, Order No. 4208-4144. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No 13-4500, Order No. 4208-4144. A DUPLICATE OF THIS DOCUMENT IS ATTACHED.

Respectfully submitted,
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Dated: September 11, 2007

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